ESSAY

TOWARDS

A New METHOD

To Shew the

LONGITUDE at Sea;

Especially near the

Dangerous SHORES.

LONDON: Printed for E. PLACE,
at *Furnival's-Inn-Gate* in *Holborn*, 1714.
(Price Six Pence.)

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To the Right Honourable the LORDS, and the Honourable the GENTLEMEN, appointed Commissioners by Act of Parliament, for encouraging the Discovery of the Longitude.

May it please Your HONOURS,

IF the Proposal here laid before you, be impracticable, I am to ask Pardon for taking so much Time from your

your Honours Business or Study, as the bare Perusal of it requires: But if you think it possible for a Light to be forc'd high and strong enough to be of any Use in Navigation, I humbly hope this Thought will meet with Approbation, and such Helps and Encouragement from your Honours great Skill, as may raise it to its wish'd Height.

I have always observ'd the greatest Candour from the greatest Men: To whom then should I apply, but to those that our Legislators have

have allow'd to be such? I am with all Deference and Submission,

Your Honours

Most Obedient

Humble Servant.

The Dedication.

have allow'd to be such? I am with all Deference and Submission,

Your Honours

Most Obedient

Humble Servant.

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AN ESSAY TOWARDS A New METHOD, &c.

THE generous Reward that is allotted by Act of Parliament, for making the Knowledge of the Longitude to be of practical Service, excuſes all Arguments to prove, that ſuch Knowledge will be of great Advantage to Navigation; as alſo, that it has hitherto been very uncertain in long Voyages.

Artiſts ſeem to agree, if a Movement could be made to meaſure Time with great Certainty, during the whole Voyage, all along exactly agreeing with the Time of Day and Night of that Longitude from whence the Ship at firſt ſets out, or with any other Longitude, the Diſtance of Longitude will be always known by the Differences of that Time, from the Time where the Ship ſhall be, which is diſcoverable from the Sun or Stars.

Such a Movement has, for many Years, been in vain attempted, by Reaſon of the Motion of the Ship, and the Difference of Climate.

The preſent Attempt is, to propoſe a Method, how a fix'd Longitude may be frequently ſhewn, ſo that, by the help of good Watches, it

it will be always very nearly aſcertain'd.

As the Shadow on a Sun-Dial points out the Time of Day, with as great Certainty and Satisfaction to the Eye, as the Hand of a Clock, which is a material Subſtance; ſo, I am aſſur'd, if an Appearance of Light can be ſufficiently ſeen in the Sky, 'twill be of the ſame Uſe, as if 'twere poſſible to fix a material Light therein.

A Houſe built after the Form of the Draught hereunto annex'd, with the Lights and Glaſſes therein deſcrib'd in the Projection, to force a large Stream of Light through the Funnel at Top, to the Clouds.

The Diſtance of the Viſibility of ſuch Light, or its Reflexion, will be in Proportion to the Size of the

Houſe, and Strength of the Light it contains: And the Propoſer humbly hopes, for the Advantages of ſuch Improvements, as this Thing ſhall, by Tryal, or otherwiſe, be capable of.

On the Power of Glaſs to reflect Light.

That Looking-glaſs will reflect Light with great Strength, may be ſeen by holding a Glaſs againſt the Sun, and the Reflexion will be too dazzling for any Eye to bear, tho' at a conſiderable Diſtance. I have ſeen the Reflexion of Glaſs, when the Sun has been almoſt down, ſeveral Miles from me. I have alſo ſet a Candle in one Room, and held a Glaſs ſo, that the Reflexion has reach'd into another, which was intirely dark, and I have taken Notice, that every Thing is plainly ſeen wherever

wherever the Reflexion points. And alſo, that Glaſs will ſtrengthen Light, is demonſtrable, by ſetting a Candle by a Looking-glaſs, and the Ceiling will appear much brighter where the Reflexion reaches. From whence it ſeems evident, that if the moſt artificial Looking-glaſs be properly plac'd in the Light-houſe, 'twill give an unſpeakable Strength to the Light, inſomuch, that one hundred Lamps will, by the Means thereof, caſt up as ſtrong a Light, as double the Number would do without ſuch Help.

Of the conveying Light through the Convex Glaſſes.

The Houſe being on all Sides cloſe, the whole Body of Light muſt paſs through the firſt Range of Convex-Glaſs, which being ſo turn'd towards the Centre of the next

next Range, and thoſe, after the like Manner, turn'd to the Funnel, it will alſo paſs thro' that, with vaſt Force, into the Sky. But that no Advantage to the Light may be omitted, the Funnel alſo ſhould be lin'd with the brighteſt Looking-glaſs; the Reflexion of which would probably both enforce and enlarge the Appearance of the Light againſt the Clouds, which will be a great help to its Viſibility at a large Diſtance.

Common Obſervations.

That the Appearance of Light has been plainly viſible in the Sky at many Miles Diſtance, I have obſerv'd in the late rejoycing Nights, from the Reflexion of Bonefires, tho' I have not ſeen the Fires themſelves.

Surely

Surely, there can be no Proportion between the Strength of Light which would come from ſuch an artificial Light-houſe, and what would proceed from a Fire that diſperſes its Force every Way; for I've alſo obſerv'd, that one of theſe Bone-fires that was made in a cloſe Street, has given a greater Light into the Sky, than one of the ſame Sort in a more open Place.

What Height the Light will be viſible.

It remains to conſider how far it may be poſſible, by a very large Light-houſe, (for this Draught is only intended to ſhew the Proportion and Deſign of the Thing, not the Size) to caſt up a Light ſtrong and large enough to reflect againſt the

the Clouds, ſo as often to be ſeen at a ſufficient Diſtance.

N.B. Our ſeeing the Stars, is a Demonſtration that the Eye is capable of ſeeing at any Diſtance, if the Object be large and bright enough.

If the Light would reach two Miles high, with ſufficient Strength, the Orbicular Form of the World would allow its Viſibility about 200; and it would be ſo much expanded in paſſing two Miles, that if it could be made to ſhine bright enough againſt the Clouds which frequently fly about that Height, it would probably be of ſufficient Extention to be ſeen at the 200 Miles Diſtance: And when the Shutter darkens, and lets looſe the Light again, (as it often will do) it will appear like ſo many Flaſhes of Lightning, and probably

probably be seen much farther for that.

It is impossible to know how far such a Light may be seen without Tryal. If it should reach what is here proposed, I presume 'twill answer the End of a *West-India* Voyage, if a few such Houses were plac'd on proper Heights near the Ocean, for at least all the dangerous Parts of the Voyage. They'd however be a Security from the Danger of the Shores, and make a better Sort of Light-houses, especially in Fogs, when the Stream of Light will be all along plainly seen, and when built, they will not be a vast Charge, if consider'd as a publick Good.

* *Islands, Cabes, and Points in* Europe *and* America, *as shall be most proper; particularly, Lands-End, Cape* Finistre, *Western Isles*, Teneriff, Bermudas, &c.

How the Longitude is to be shewn by the Light-house.

When the Clock gives Notice of Striking, the Shutter over the Funnel must be drawn close, so as nicely to conceal the Light; and the Instant it does strike, it should be open'd to its original Blaze of Light, and be shut again following Times as the Clock strikes, which will shew the Hour where the Light-house stands. Then the Light should be conceal'd again for a little Time, and after the like Manner, the Degrees and Minutes of Longitude where the Light-house stands may also appear; and if too great a Number of Flashes should be requir'd, a double Flash may be contriv'd, which may betoken ten single ones.

Thus

Thus, as far as this Light can be ſeen, if the Sailor knows the Time of Night where he is, he'll not be at a Loſs to know the exact Longitude.

ERRATA.

Page 10 [illegible] Longi-
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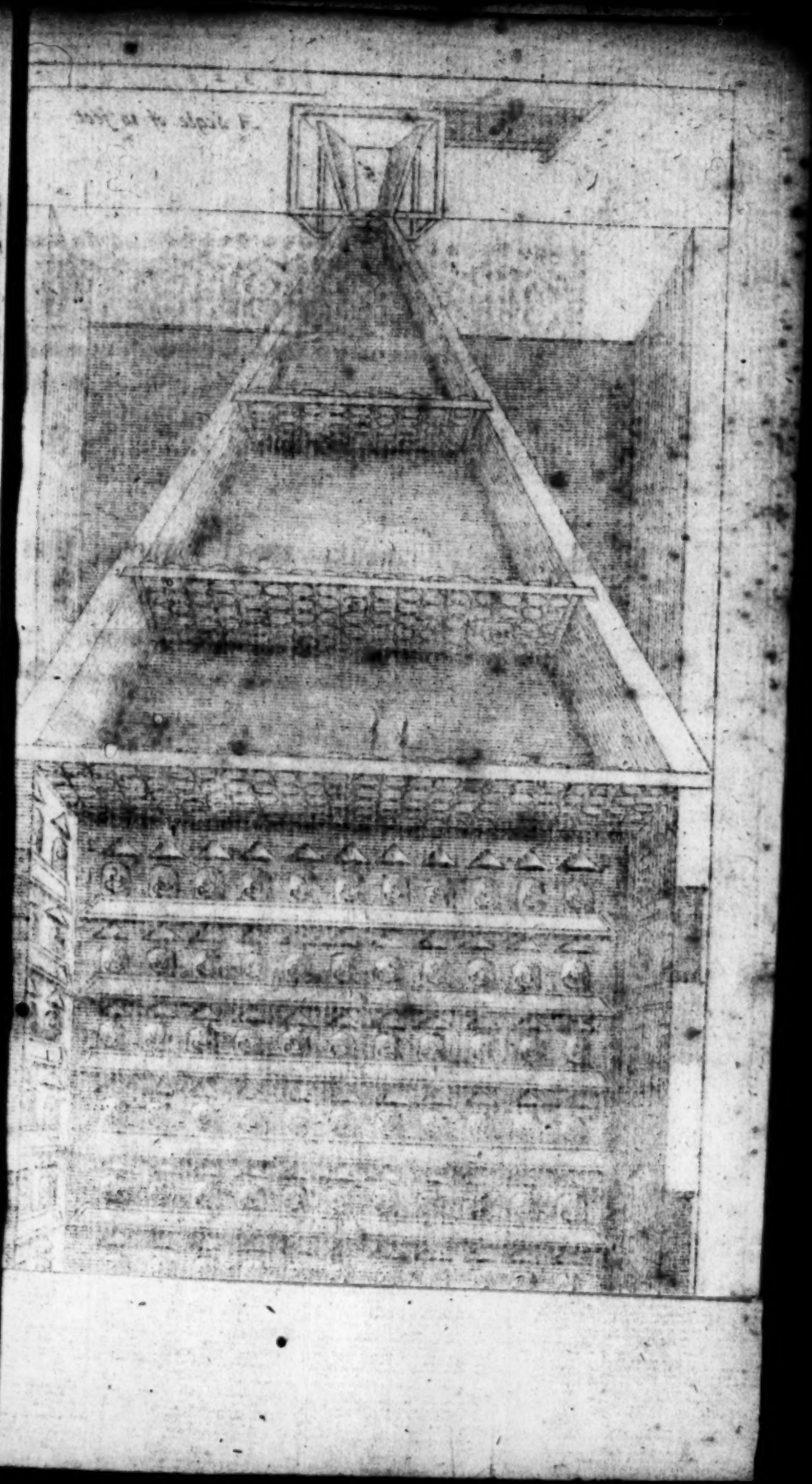
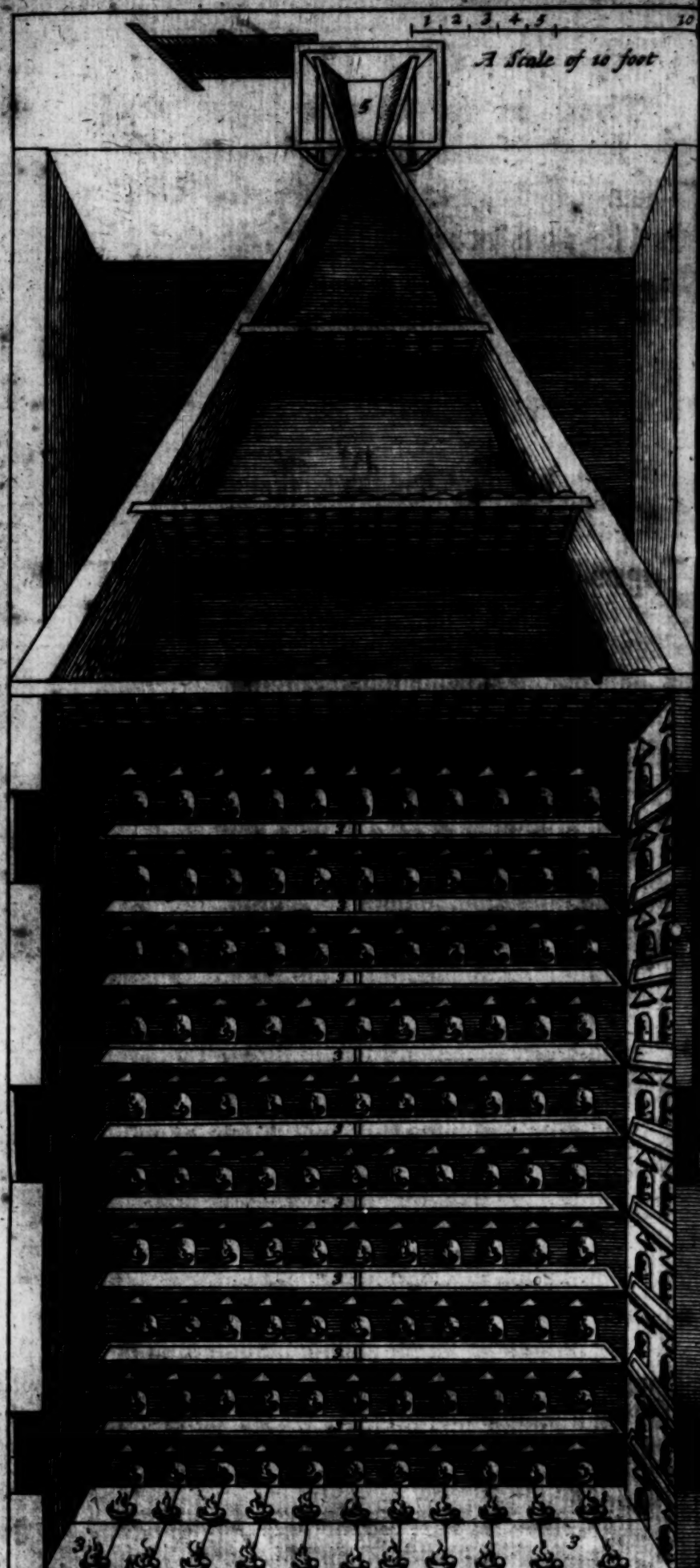
Page 11 [illegible]

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EXPLANATION of the CUT.

1. *Lamps from whence the Light arises.*
2. *Funnels to let out the Smoke.*
3. *Looking-glasses to direct the Reflexion of the Lights against the Convex-Glasses.*
4. *Convex-Glasses, to enforce the Light upwards.*
5. *The Funnel to let the Light into the Sky, lin'd with Glass.*
6. *The Shutter to darken it at Pleasure.*

EXPLANATION of the CUT.

A Lamp, from whence the Light
arises.
B Funnels to let out the Smoke.
C Looking-glass to throw the Re-
flexion of the Light against the
Convex-Glasses.
D Convex-Glasses, to enforce the Light
upwards.
E The Funnel to let the Light into
the Sky, line'd with Glass.
F The Shutter to darken it at Plea-
sure.